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# फिटिंगों तथा पोलिइथाइलीन ( पी ई ) के दाब पाइपों के बीच समायोजित जोड़ – कर्षण के प्रति प्रतिरोधिता परीक्षण

*Indian Standard*

# ASSEMBLED JOINTS BETWEEN FITTINGS AND POLYETHYLENE ( PE ) PRESSURE PIPES — TEST OF RESISTANCE TO PULL OUT

UDC 621·643·29 : [ 678·742·2 ] : 620·176·25

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NEW DELHI 110002

*July* 1992 **Price Group 1**

Irrigation Equipment and Systems Sectional Committee, FAD 35

## NATIONAL FOREWORD

This Indian Standard, which is identical with ISO 3501 : 1976 'Assembled joints between fittings and polyethylene ( PE ) pressure pipes — Test of resistance to pull out', issued by the International Organization for Standardization ( ISO ) was adopted by the Bureau of Indian Standards on the recommendation of the Irrigation Equipment and Systems Sectional Committee ( FAD 35 ) and approval of the Food and Agriculture Division Council.

In the adopted standard certain terminology and conventions are not identical with those used in Indian Standards; attention is drawn specially to the following:

a) Comma ( , ) has been used as a decimal marker while in Indian Standards the current practice is to use a point ( . ) as the decimal marker.

b) Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.

While adopting this standard the following shall also be observed:

The test temperature shall be 27 ± 1°C.

# *Indian Standard*

# ASSEMBLED JOINTS BETWEEN FITTINGS AND POLYETHYLENE ( PE ) PRESSURE PIPES — TEST OF RESISTANCE TO PULL OUT

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for checking the ability of assembled joints ( excluding fusion-welded joints ) between fittings and polyethylene ( PE ) pressure pipes to withstand longitudinal tensile stresses.

The test is applicable regardless of the design and materials of the fitting used for jointing polyethylene pipes and applies to pipe with a nominal diameter up to and including 63 mm ( 2·480 in ).

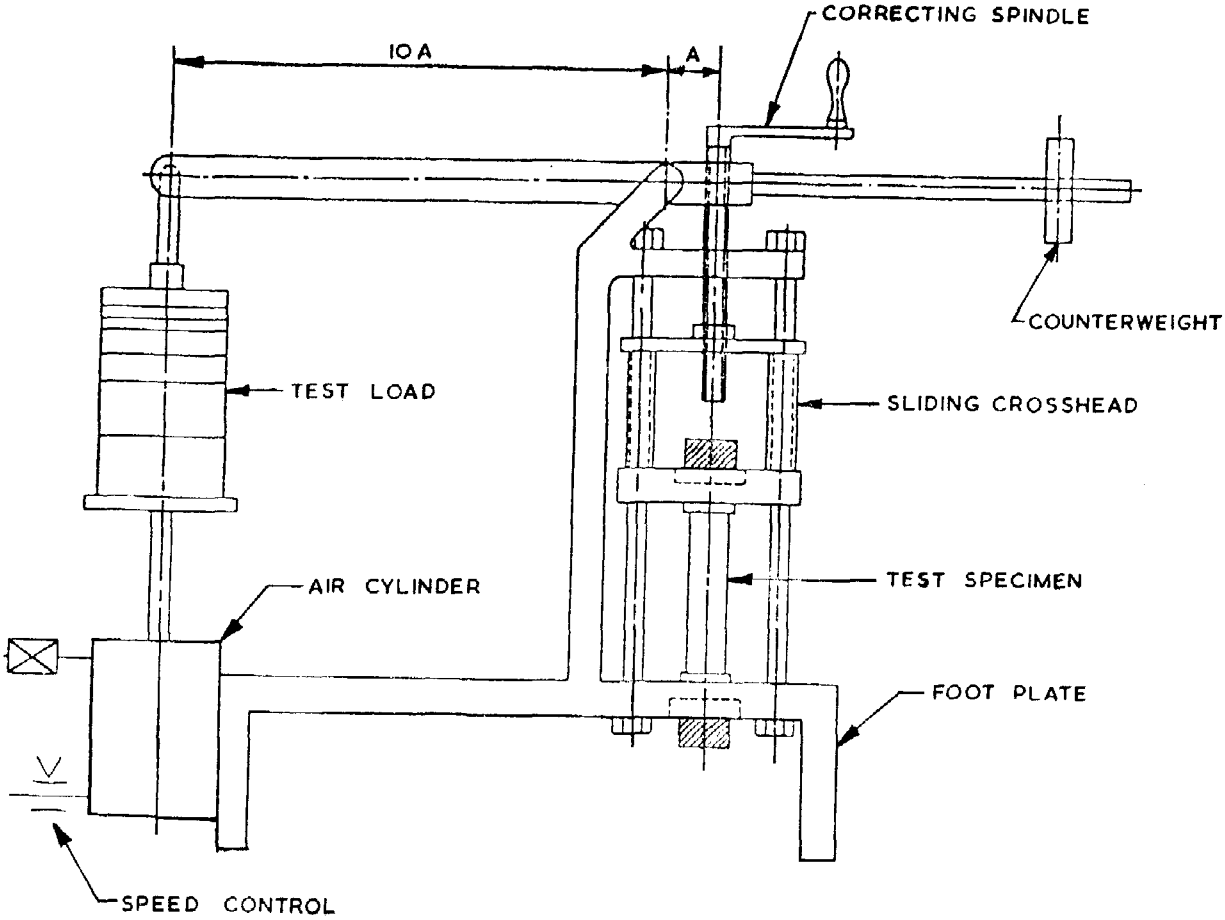
## 2 PRINCIPLE

Checking of the ability of an assembled joint to resist pulling out when submitted to longitudinal tension.

## 3 APPARATUS

**Tensometer** capable of holding the test specimen at a constant longitudinal stress.

Alternatively, the calculated force may be applied to the specimen by means of weights, in which case the specimen shall be suspended on a frame with a suitable stirrup at the lower end of the specimen to hold the weights.



All dimensions in millimetres.

Figure — Diagram of suitable apparatus

## 4 TEST SPECIMEN

The test specimen shall consist of the fitting to be tested assembled with one or more pieces of polyethylene pipe, of the size and quality for which the fitting is designed.

Each piece of pipe shall be at least 300 mm ( 12 in ) in length.

The assembly of the joints should be carried out in accordance with the individual national practices or standards.

## 5 PROCEDURE

From the dimensions of the pipe, calculate the cross-section of the pipe wall, and from this figure calculate the force ( $K$ ) necessary to produce a longitudinal stress of one and a half times the maximum permissible working stress of the material from which the pipe is made, using the following formula:

$$K = 1{,}5 \times \sigma_t \times \frac{\pi}{4} ( d_e^2 - d^2 )$$

where

$\sigma_t$ is the permissible induced stress for the considered polyethylene pipe;

$d_e$ is the nominal outside diameter of the pipe;

$d$ is the internal diameter of the pipe.

## 6 TEST REPORT

The test temperature shall be 20 ± 2 °C.

Secure the test specimen in the apparatus.

Apply the calculated force gradually over a period of 30 s.

Hold the specimen in constant tension for a period of at least 1 h.

The test report shall refer to this International Standard and shall indicate:

- the calculated force;
- whether or not the joint has loosened.

The joint shall be deemed satisfactory if, during the test, the pipe has not been pulled from the fitting.

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